Network and Storage Rates from the CMS Computing Model

Ian Fisk

CMS Coordination Meeting

October 18, 2005

The Model

CMS spent most of the last year working on data management and the computing model

- CMS RTAG on Data Management in the fall of 2004
- Release of the Computing Technical Design Report in the summer of 2005

Document describes baseline computing model for CMS

- Explanation of computing capacity
- Interconnectivity
- Baseline services and activity descriptions

Document describes a fairly traditional and largely statically partitioned distributed computing model

- Makes realistic requirements on grid services

More information in

- http://cmsdoc.cern.ch/cms/cpt/tdr/index.html

Network Rates

CMS quotes network requirements with both a safety and a headroom factor. The headroom factor is a factor of two provisioning.

- Incoming rates
  - Rate of simulation archive from Tier-2 centers
    - 1.0Gb/s
  - Full Event and Reconstruction Data from Tier-0
    - 3.0Gb/s
  - AOD Versions from re-reconstruction
    - 3.0Gb/s
  - Local Analysis activities from other Tier-1 centers
    - 1.4Gb/s
- Total Incoming 8.5Gb/s

FNAL is approximately two full size CMS Tier-1 centers (analysis not doubled)

Total Incoming Rates Estimated: 15.5Gb/s

Network Rates Continued

Cont.

- Outgoing Rates
  - Event Serving to Tier-2s 3.5Gb/s
  - Re-processsing export to Tier-1 Centers 0.5Gb/s
- Total Outgoing 4.0Gb/s

FNAL is approximately two full size CMS Tier-1 centers

- Network numbers approximately double

Estimated Total Outgoing Rate 8Gb/s

Destinations

From CERN

- 6Gb/s + 3Gb/s

Sum from 7 US Tier-2 centers

- 2.0Gb/s

Sum from Tier-1 resources (asymmetrically divided)

- 3.0Gb/s + 1.4Gb/s

To Tier-2 Centers in the US

- 2.1Gb/s

To Tier-2 Centers outside the US

- 4.9Gb/s

To Tier-1 for data reprocesses at FNAL

- 1.0Gb/s